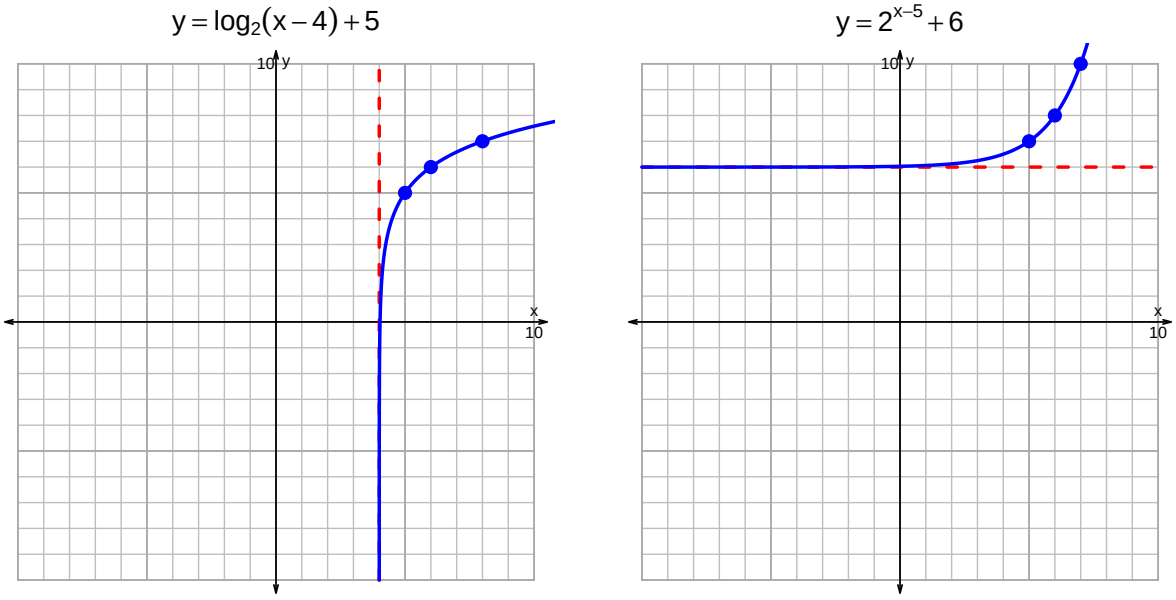
Name: Date:

S18QUIZ: EXP LOG (SLTN v204)

1. Graph $y = \log_2(x-4)+5$ and $y = 2^{x-5}+6$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-29 = \left(\frac{-3}{7}\right) \cdot 2^{-5t/4}$$

Divide both sides by $\frac{-3}{7}$.

$$\frac{29 \cdot 7}{3} = 2^{-5t/4}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{29 \cdot 7}{3}\right) = \frac{-5t}{4}$$

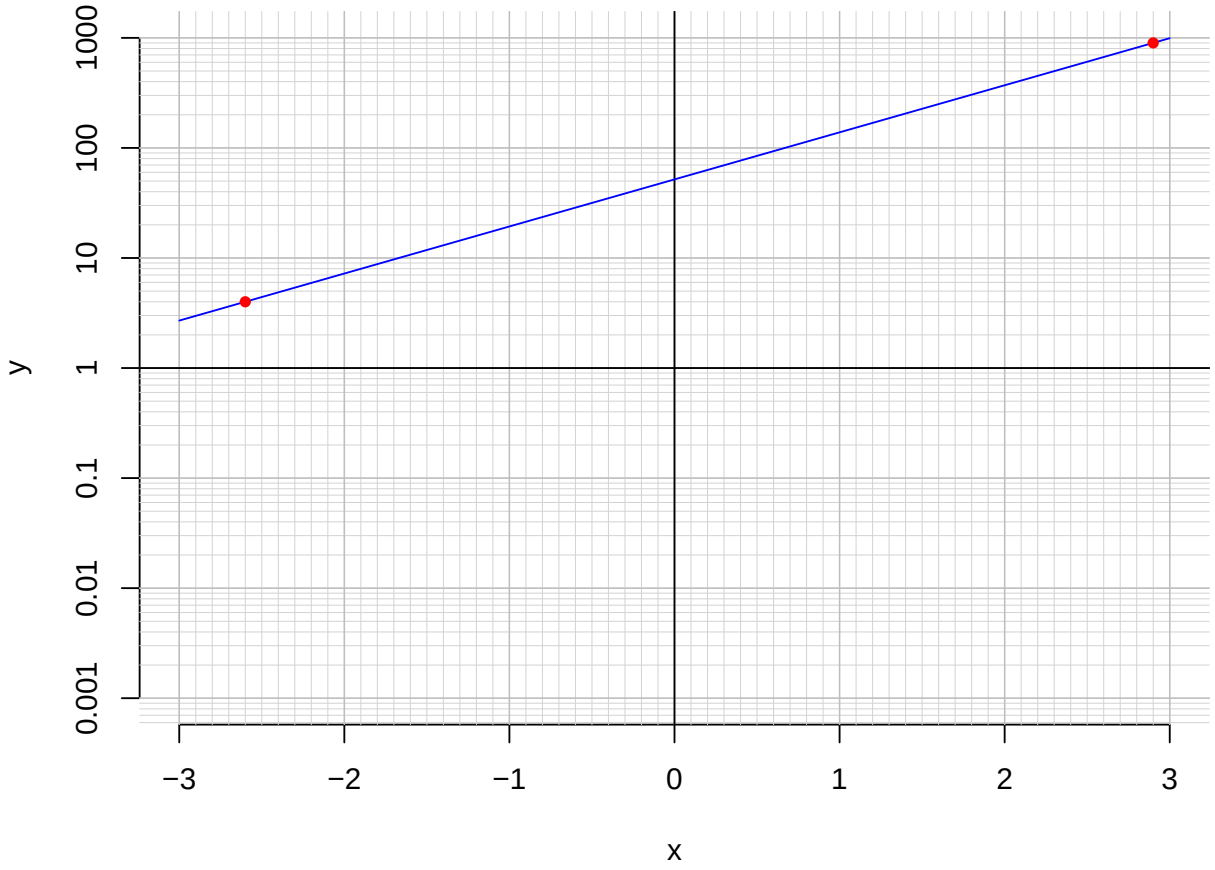
Divide both sides by $\frac{-5}{4}$.

$$\frac{-4}{5} \cdot \log_2\left(\frac{29 \cdot 7}{3}\right) = t$$

Switch sides.

$$t = \frac{-4}{5} \cdot \log_2\left(\frac{29 \cdot 7}{3}\right)$$

3. An exponential function $f(x) = 51.8 \cdot e^{0.985x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(2.9)$.

$$f(2.9) = 900$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{1}{0.985} \cdot \ln\left(\frac{x}{51.8}\right)$$

c. Using the plot above, evaluate $f^{-1}(4)$.

$$f^{-1}(4) = -2.6$$